

CORE-TRAY COLUMN INTERNALS

APPLICATION

Whenever a distillation process has to be carried out in columns containing no metal because corrosion can occur or there can be an adverse effect on the product from metal ions, column packings are available such as DURAPACK, a structured glass packing with outstanding separation properties. Columns containing no metal and able to withstand high temperatures and high vacuum, are available in Borosilicate glass 3.3 and glass-lined steel.

NEW

- ☞ 120 % free cross section
- ☞ corrosion resistant, metal-free
- ☞ up to 1,2 m diameter

The CORE-TRAY support (patent applied) can also be supplied in a version acting as a liquid collector and distributor, and now also provides a solution for the problem of metal-free support trays with a large free cross-section. Whereas previously available versions made of enamel or graphite created a bottleneck in the column, CORE-TRAY provides a free cross-section of approx. 120%. Using only glass-lined steel for



Fig. 1: CORE-TRAY DN 1000 assembly, here for packing with glass support

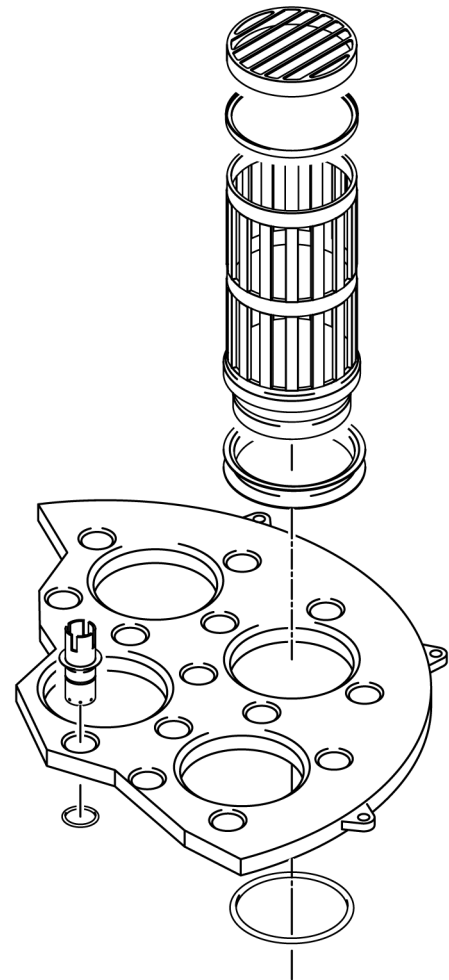


Fig. 2: CORE-TRAY column packing support with support grid on top for random packing and distributor spouts

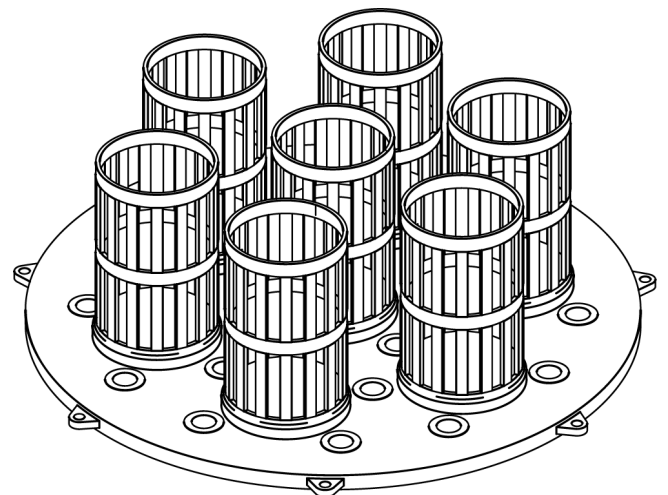


Fig. 3: CORE-TRAY packing support for structured packing

the plates clamped between the buttress ends, Borosilicate glass for the risers and PTFE for the gaskets, CORE-TRAY contains no metal and is highly resistant to corrosion.

FUNCTION

In counter-current columns the pressure drop cannot be high wherever liquid and vapour stream come into contact. CORE-TRAY separates the liquid and vapour stream over the cross-section of the perforated plate and prevents a build-up of liquid. In the area of the gas risers, however, the throughput surface of the gas is the equivalent of 120% of the column cross-section, so that here, where the liquid and vapour stream meet, the pressure drop remains low and no build-up of liquid occurs.

The illustration shows the various levels of the CORE-TRAY. It

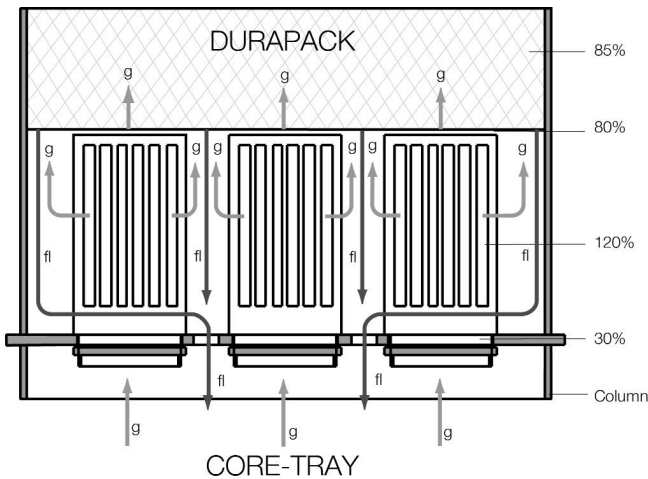


Fig. 4: Hydrodynamic levels of the CORE-TRAY

can be seen that the counter-current area which is crucial for the hydrodynamic layout is located between the packing and the perforated plate and thus reveals a free cross-section matching the DURAPACK high-performance packing. Up to 5 m of DURAPACK can be placed on a plate. If random packing is used instead of structured packing, the passages for the gas are covered with a glass grid to prevent any packing falling through.

NOTE

Liquid collectors, redistributors and liquid feeds based on the same design principle are also available. In each case the plate is clamped between the column flanges and can be centred with the welded-on eyes.

TECHNICAL DATA

Material:	Glass-lined steel, Borosilicate glass 3.3
Diameter:	600 - 1200 mm
Free cross-section:	up to 120%
Liquid loading:	0.5 - 100 m ³ /m ² h
Drip points:	100 - 300 pro m ²
Operating temperature:	-40 to +200°C
Bearing capacity:	max. 5 m DURAPACK
Patent application:	No. 10140352.6

Cladded/plated material are available in tantalum, zirconium or other noncorrosive material until diameters 2000 mm.



Fig. 5: Liquid collector and redistributor with distributor cup (view from below)